

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference G13710201PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US05/10082	International filing date (day/month/year) 25 March 2005 (25.03.2005)	(Earliest) Priority Date (day/month/year) 29 March 2004 (29.03.2004)
Applicant ROHR, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the language, the international search was carried out on the basis of:



the international application in the language in which it was filed.



a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☒ Unity of invention is lacking (See Box No. III)

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 4.



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: 1-24

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐

The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐

The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☒

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC: B64C 1/38(2006.01)

USPC: 244/130

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 244/130

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/012406 A1 (Chow et al) 05 June 2003 (05.06.2003), Figure 1, 2, 3	1-7,12-24
X	US 20030164423 A1 (Courois et al) 04 September 2003 (04.09.2003), Figures 1-3	1-3, 12-14, 19-24
X	US 2,129,824 (A. P. De Seversky) 13 September 1938 (13.09.1938), Figures 1-3	1-3, 5-8, 12-14, 19-24



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:		"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

04 April 2006 (04.04.2006)

Date of mailing of the international search report

17 MAY 2006

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
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BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-18, drawn to a deployable landing gear truck fairing.

Group II, claim(s) 19-23, drawn to a deployable landing gear truck fairing.

Group III, claim(s) 24, drawn to landing gear noise attenuator.

Group IV, claim(s) 25-44, drawn to an inflatable deployable landing gear noise attenuator.

Group V, claim(s) 45-49, drawn to a system for inflating and deflating inflatable deployable landing gear noise attentuators.

Group VI, claim(s) 51, drawn to a deployable landing gear noise -reduction apparatus.

Group VII, claim(s) 52, drawn to a deployable landing gear noise reduction apparatus.

Group VIII, claim(s) 53, drawn to a deployable landing gear noise reduction apparatus.

Group IX, claim(s) 54, drawn to a deploying landing gear noise reduction apparatus.

PATENT COOPERATION TREA.

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
NANDA K. ALAPATI
WOMBLE CARLYLE SANDRIDGE & RICE
POST OFFICE BOX 7037
ATLANTA, GA 30357-0037

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference G13710201PCT		Date of mailing (day/month/year) 17 MAY 2006
International application No. PCT/US05/10082		FOR FURTHER ACTION See paragraph 2 below
International filing date (day/month/year) 25 March 2005 (25.03.2005)	Priority date (day/month/year) 29 March 2004 (29.03.2004)	
International Patent Classification (IPC) or both national classification and IPC IPC: B 64 C 1/38 USPC: 244/130,102R		
Applicant ROHR, INC.		

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

DOCKETED

MAY 24 2006

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Date of completion of this opinion 04 April 2006 (04.04.2006)	Authorized officer Teri Luu Telephone No. 800-786-9199
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Form PCT/ISA/237 (cover sheet) (April 2005)

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

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Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
- ☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper
- ☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
- ☐ filed together with the international application in electronic form.
- ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
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Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit:
- ☒ paid additional fees
 - ☐ paid additional fees under protest and, where applicable, the protest fee
 - ☐ paid additional fees under protest but the applicable protest fee was not paid
 - ☐ not paid additional fees

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is

☐ complied with

☒ not complied with for the following reasons:

See the lack of unity section of the International Search Report (Form PCT/ISA/210)

4. Consequently, this opinion has been established in respect of the following parts of the international application:

☐ all parts.

☒ the parts relating to claims Nos. 1-24

**WRITTEN OPINION OF THE
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Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 8-11	YES
	Claims 1-7 and 12-24	NO
Inventive step (IS)	Claims 8-11	YES
	Claims 1-7 and 12-24	NO
Industrial applicability (IA)	Claims 1-24	YES
	Claims NONE	NO

2. Citations and explanations:

Claims 1-7, 12-24 lacks novelty under PCT Article 33(2) as being anticipated by Chow et al (20030102406). Chow et al discloses an aircraft, aircraft landing gear and apparatus including at least one attachment (15,17,76,93,94,111) for noise reduction purposes are provided. Such attachments are shaped and positioned on the landing gear to deflect air away from noise-inducing components (64,65) of the landing gear and to permit deflection and articulation movement and also stowage of the landing gear whilst the attachments are installed thereon. The attachments are not designed to be drag reducing.

Shown in FIGS. 1 and 3 is an axle fairing attachment 15; a lower torque link attachment 16 (shown in FIG. 1 only). Referring to FIG. 3, the axle fairing attachment 15 is clamped around the leg 4 by a clamp (not shown). The steering mechanism attachment 17 is a generally domed shape formed to minimize any stagnation areas centrally thereof. Edge region 47 is shaped and positioned to merge air leaving the attachment with free stream air, tangential thereto. The region of the landing gear behind the attachment 17 is prone to noise generation and this attachment is effective for reducing noise emanating from the landing gear. Referring to FIG. 2, parts common to FIG. 10 have been shown with identical reference numerals. An undertray attachment 76 is shown clamped to the bogie beam 71 by clamps 77, 78 and also by clamps 79, 80 (see FIGS. 8, 9) to the axles 72, 73. The undertray 76 has a single curvature aerodynamic surface 81 extending over a forward upwardly extending portion 82 and a lower portion 83 extending under the bogie beam.

The forwardly upwardly extending portion 82 has extensions 91, 92 wrapping around a lower articulation link fairing attachment 93, which works in conjunction with an upper articulation link fairing attachment 94. With the landing gear in the approach position as shown in FIG. 2 it can be seen that the forward portion 82 of the undertray wraps neatly around the lower articulation link fairing attachment 93 to provide a smooth aerodynamic contour of low noise configuration. It will be appreciated that the forward portion 82 of the undertray effectively deflects incident air away from the dressings 60. Referring to FIG. 2, forward drag stay 110, retraction actuator 65 and main leg 64 are all shielded from the airstream by a door deflector attachment 111 attached in sealing engagement to a wing skin door 112 attached to the main leg 64.

Owing to the way the landing gear is stowed in the bay, space is extremely tight in this area and the deflector attachment 111 achieves the object of deflecting air away from the main leg, the actuator and the forward drag stay without interfering with the stowage of the gear. The attachment 111 is clamped by through bolts to the forward drag stay 110 and comprises a first portion 113 having a generally concave aerodynamic surface 114 and a second portion 115 having a generally convex aerodynamic surface 116.

Claims 8-11 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a weight bearing spacer between the upper and lower shield plates.

Claims 1-24 meet the criteria set out in PCT Article 33(4), and thus meet industrial applicability because the subject matter claimed can be made or used in industry.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

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Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claims 12 and 13 objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or contents thereof: These claims recite "the compliant edge comprise", however the applicant has not previously introduced "a compliant edge" in claim 1. Therefore the phrase "the compliant edge" lacks antecedent basis.